

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
1 April 2004 (01.04.2004)

PCT

(10) International Publication Number
WO 2004/026175 A1

(51) International Patent Classification⁷: A61F 2/01

(21) International Application Number:
PCT/IB2003/004070

(22) International Filing Date:
18 September 2003 (18.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/412,071 19 September 2002 (19.09.2002) US
60/417,408 9 October 2002 (09.10.2002) US
60/423,240 1 November 2002 (01.11.2002) US
10/304,067 26 November 2002 (26.11.2002) US
60/464,872 23 April 2003 (23.04.2003) US

(71) Applicant and

(72) Inventor: **BESSELINK, Petrus** [NL/NL]; Gronausestraat
1220, NL-7534 at Enschede (NL).

(81) Designated States (national): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,

CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,
GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK,
MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,
RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

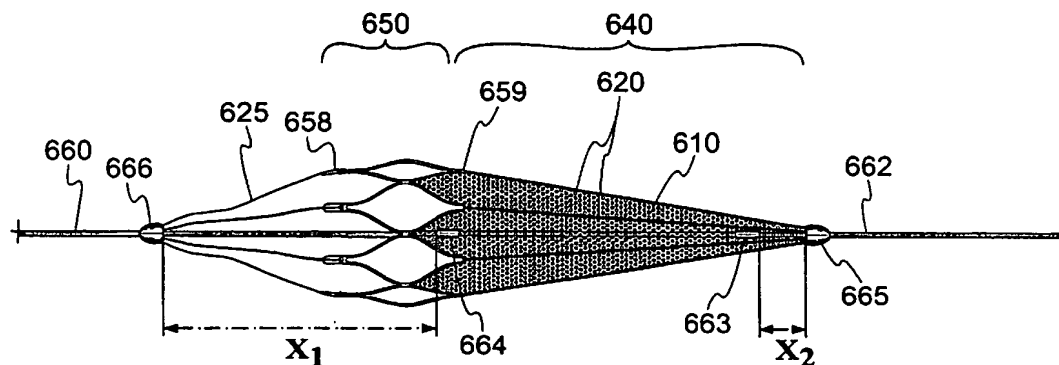
(84) Designated States (regional): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: VASCULAR FILTER WITH IMPROVED STRENGTH AND FLEXIBILITY



(57) Abstract: A medical device including a fiber-reinforced membrane. The fibers can be embedded into or attached to the mem-
brane to strengthen the device. In one embodiment, the device can be a vascular filter that is attached to an expandable frame. In one
device fabrication approach, the device can be made by building it up around a mold. In addition, the mold can be coated with an
intermediate material that is easily separated from the membrane material. The intermediate material is covered with the membrane
material, after which the fibers are placed in contact with the membrane material that covers the intermediate material. The fibers can
then be covered with additional membrane material to embed the fibers into the membrane, after which the mold may be removed
by melting, dissolving, deforming or related techniques. Similarly, the intermediate material can be removed from the membrane.

WO 2004/026175 A1